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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,165	09/27/2004	Stephen W. Beadle	2002B048A	5041

23455 7590 05/04/2007  
EXXONMOBIL CHEMICAL COMPANY  
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EXAMINER
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BULLOCK, IN SUK C

ART UNIT	PAPER NUMBER
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1764

MAIL DATE	DELIVERY MODE
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05/04/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/509,165	Applicant(s) BEADLE ET AL.	
	Examiner In Suk Bullock	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0311310 (hereinafter "EP '310") in view of WO 93/16020 (hereinafter "WO '020").

The EP '310 reference discloses a process for oligomerizing a lower olefin feedstock to produce substantially linear hydrocarbons of higher molecular weight than the feedstock (see page 2, lines 3-4). The feedstock is contacted with ZSM-23 which is surface deactivated with a surface deactivating agent 2,4,6-collidine (see page 2, lines 31-39 and 57-58). The olefin feedstock comprises  $C_2$ - $C_{10}$  olefins, preferably  $C_3$ - $C_6$  olefins, more preferably  $C_3$ - $C_4$  olefins. The conditions used to effect oligomerization include a temperature in the range of 1--350° C, a pressure of atmospheric to 20,000 kPa, and a WHSV of 0.01-2. See page 3, lines 1-9. When propylene or butene are oligomerized according to the disclosed process, a mixture of liquid hydrocarbon products is formed comprising at least 95% by weight of mono-olefins oligomers of the empirical formula  $C_{(n+nm)}H_{2(n+nm)}$  where n is 3 or 5 and m is an integer from 1 to 6, said mono-olefin oligomers comprising at least 20 % by weight of olefins having at least 12 carbon atoms, said olefins having at least 12 carbon atoms having an average of from 0.80 to 2.00 methyl side groups per carbon chain, said olefins not having any side groups other than methyl (see page 3, lines 10-23).

The EP '310 reference fails to disclose conducting the oligomerization reaction in the presence of water.

The WO '020 reference discloses a process for oligomerization of  $C_2$ - $C_{12}$  alkenes comprising contacting an alkene-containing feedstock having a water content of from 0.05 to 0.25 molar %, based on the hydrocarbon content of the feedstock, with zeolite catalyst (see Abstract; page 3, lines 1-15; and page 4, lines 9-18). The zeolite catalyst may be any catalyst that is active in alkene oligomerization reactions (page 4, lines 20-

21). Example 1 on page 14 of the specification discloses that the feedstock is hydrated by passing the feedstock, at a temperature of 39° C, through a thermostatted water saturator prior to its introduction into the reactor containing the zeolite catalyst.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of EP '310 by hydrating the feedstock as disclosed by WO '020 because WO '020 has taught that hydrating the feed results in improved yields and prolongs catalyst life (see specifically page 3, lines 5-7).

### ***Response to Arguments***

Applicant's arguments filed February 7, 2007 have been fully considered but they are not persuasive.

Applicant argues, and the examiner agrees, "the present invention produces a mixture of oligomers having methyl, ethyl, and propyl branches . . . whereas EP 0 311 310 B1 clearly teaches product oligomers" having only methyl side groups. However, the argument is not persuasive because the EP 0 311 310 B1 reference does not contain water in the oligomerization reaction as it is called for in claim 1. The secondary reference WO 93/16020 was applied for the teaching of hydrating the feed in an oligomerization process to achieve increased yields and increased catalyst life. Hence, the combination of references is proper and it would have been expected the combined teaching of the references would result in similar output, i.e. oligomer products having methyl, ethyl, and propyl side groups.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to In Suk Bullock whose telephone number is 571-272-5954. The examiner can normally be reached on Monday - Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*J. Bullock*  
I.B.

  
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